

IN THE CLAIMS

The following claim set replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for removing excess fluid from a patient comprising the steps of:

- a. removing blood directly from a first peripheral blood vessel in the patient;
- b. filtering the removed blood through a filter to separate the excess fluid from the blood;
- c. returning the filtered blood into a second peripheral blood vessel in the patient;
- d. wherein a blood flow through the filter is less than two percent of a total cardiac output of the patient, and a flow of the excess fluid removed from the blood is ~~in a range of 0.1 to no greater than~~ 1.0 liters per hour.

2. (Currently Amended) A method as in claim 1 wherein the excess fluid removed from the blood is ~~in a range of 15 to no greater than~~ 30 percent of a volume of the removed blood.

3. (Original) A method as in claim 1 wherein the step of filtering is performed by sieving the blood through a filter to remove excess fluid.

4. (Original) A method as in claim 1 further comprising the step of pumping the removed blood with a blood pump at a rate of less than 100 milliliters (ml) per minute.

5. (Currently Amended) A method ~~as in claim 1 for removing excess fluid from a patient comprising the steps of:~~

- a. ~~removing blood directly from a first peripheral blood vessel in the patient;~~
- b. ~~filtering the removed blood through a filter to separate the excess fluid from the blood;~~

c. returning the filtered blood into a second peripheral blood vessel in the patient;

wherein a blood flow through the filter is less than two percent of a total cardiac output of the patient, a rate of the removal of blood is no greater than 60 milliliters per minute and a rate of removal of the excess fluid is no greater than 16 milliliters per minute.

6. (Currently Amended) A method as in claim 1 wherein a rate of the removal of blood is in a range of 40 to 60 milliliters per minute, and a rate of removal of the excess fluid is in a range of 1.6 to no greater than 16 milliliters per minute.
7. (Original) A method as in claim 1 further comprising the step of removing solute from the blood by a kidney in the patient, where the kidney is at least partially functional.
8. (Original) A method as in claim 4 wherein the blood pump stops upon detection of a blockage of blood flow in the blood being removed in step (a).
9. (Original) A method as in claim 1 wherein the blood pump stops upon detection of a air bubble in the blood during any of steps (a), (b) and (c).
10. (Original) A method as in claim 1 wherein the first peripheral blood vessel is a vein.
11. (Original) A method as in claim 1 wherein the second peripheral blood vessel is a vein.
12. (Original) A method as in claim 1 wherein the first and second peripheral blood vessel are the same vein.
13. (Original) A method as in claim 1 wherein the filter includes capillary, hollow fibers.
14. (Original) A method as in claim 13 wherein the hollow fibers have filtering pores which retain in the blood solutes greater than 50,000 Daltons.
15. (Original) A method as in claim 13 wherein the hollow fibers have blood passages of approximately 0.2 mm or less in diameter.

16. (Currently Amended) A method as in claim 1 for removing excess fluid from a patient comprising the steps of:

- a. removing blood directly from a first peripheral blood vessel in the patient;
- b. filtering the removed blood through a filter to separate the excess fluid from the blood, wherein the filter has a trans-membrane pressure (TMP) in a range of 150 millimeters (mm) of mercury (Hg) to 250 mmHg, and,
- c. returning the filtered blood into a second peripheral blood vessel in the patient;

wherein a blood flow through the filter is less than two percent of a total cardiac output of the patient.

17. (Original) A method as in claim 1 wherein the blood flow through the filter causes a wall shear rate of the blood between $1,000 \text{ sec}^{-1}$ per seconds and 2,500 per seconds.

18. (Original) A method as in claim 1 wherein the filtration is ultrafiltration.

19. (Original) A method as in claim 1 further comprising minimizing extraction of solutes during filtration.

20. (Original) A method as in claim 1 further comprising extracting primarily water as the fluid removed from the blood during filtration.

21. (Original) A method as in claim 1 wherein blood flows continuously through the filter during periods in which a blood pump is pumping the removed blood.

22. (Original) A method as in claim 1 wherein excess fluid removed from blood flows intermittently from the filter.

23. (Original) A method as in claim 22 wherein a valve in a flow path from the filter for removal of excess fluid cyclically stops and starts the flow of excess fluid from the filter.

24. (Original) A method as in claim 1 wherein a total amount of extracorporeal blood is not greater than 100 milliliters.

25. (Original) A method as in claim 1 wherein said fiber includes less than 1000 filtering fibers.

26. (Original) A method as in claim 1 wherein blood removed during step (a) is returned in step (b) within two minutes.

27. (Currently Amended) A method for removing excess water from a patient comprising the steps of:

- removing blood directly from a first peripheral blood vessel in the patient;
- condensing the removed blood through a filter to separate the excess water from the blood;
- returning the condensed blood into a second peripheral blood vessel in the patient;
- wherein a blood flow through the filter is less than two percent of a total cardiac output of the patient, and a flow of the excess fluid removed from the blood is ~~in a range of 0.1 to no greater than~~ 1.0 liters per hour.

28. (Currently Amended) A method as in claim 27 wherein the excess ~~water~~fluid removed from the blood is ~~in a range of 15 to no greater than~~ 30 percent of a volume of the removed blood.

29. (Original) A method as in claim 27 wherein the step of filtering is performed by sieving the blood through a filter to remove excess water.

30. (Original) A method as in claim 27 further comprising the step of pumping the removed blood with a blood pump at a rate of less than 100 milliliters (ml) per minute.

31. (Original) A method as in claim 27 wherein a rate of the removal of blood is no greater than 60 milliliters per minute, and a rate of removal of the excess water is no greater than 16 milliliters per minute.

32. (Currently Amended) A method as in claim 27 wherein a rate of the removal of blood is in a range of 40 to 60 milliliters per minute, and a rate of removal of the excess water is ~~in a range of 1.6 to no greater than~~ 16 milliliters per minute.

33. (Original) A method as in claim 27 further comprising the step of removing solute from the blood by a kidney in the patient, where the kidney is at least partially functional.
34. (Original) A method as in claim 30 wherein the blood pump stops upon detection of a blockage of blood flow in the blood being removed in step (a).
35. (Original) A method as in claim 30 wherein the blood pump stops upon detection of a air bubble in the blood during any of steps (a), (b) and (c).
36. (Original) A method as in claim 27 wherein the first peripheral blood vessel is a vein.
37. (Original) A method as in claim 27 wherein the second peripheral blood vessel is a vein.
38. (Original) A method as in claim 27 wherein the first and second peripheral blood vessel are the same vein.
39. (Original) A method as in claim 27 wherein the filter includes capillary, hollow fibers.
40. (Original) A method as in claim 39 wherein the hollow fibers have filtering pores which retain in the blood solutes greater than 50,000 Daltons.
41. (Original) A method as in claim 39 wherein the hollow fibers have blood passages of approximately 0.2 mm or less in diameter.
42. (Currently Amended) A method as in claim 38 wherein the filter has a trans-membrane pressure (TMP) ~~in a range of 150 no greater than 250~~ millimeters (mm) of mercury (Hg) ~~to 250 mmHg~~.
43. (Original) A method as in claim 27 wherein the blood flow through the filter causes a shear rate of the blood between $1,000 \text{ sec}^{-1}$ per seconds and 2,500 per seconds.
44. (Original) A method as in claim 27 wherein the filtration is ultrafiltration.
45. (Original) A method as in claim 27 further comprising minimizing extraction of solutes during filtration.

46. (Original) A method as in claim 27 wherein blood flows continuously through the filter during periods in which a blood pump is pumping the removed blood.

47. (Original) A method as in claim 27 wherein excess water removed from the blood flows intermittently from the filter.

48. (Original) A method as in claim 47 wherein a valve in a flow path from the filter for removal of excess water cyclically stops and starts the flow of excess water from the filter.

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Claims 49 through 54 (Cancelled).